Record 32% quantum efficiency for near-UV/violet LEDs

In a continuation of a collaborative R&D effort funded partly by the US Department of Commerce under the NIST Advanced Technology Program, **Cree Lighting Company** (Goleta, CA, USA) has demonstrated a near-UV/violet InGaN LED (on a silicon carbide substrate) with a quantum efficiency of 32%. This exceeds Cree's previous record for UV-to-blue wavelengths (set last July) by 20%. The LED emits at 390 nm and has a power output of 21 mW at 20 mA.

High-efficiency LEDs in the UV and near-UV spectrum are essential for optically exciting phosphors in efficient solid-state white light sources.

"This result takes us beyond the 30% milestone in the UV-to-blue wavelength spectrum and brings us closer to the goal of a solid-state product that can replace incandescent and fluorescent light sources", says vp Mike Dunn.

* Sales for Cree Inc (Durham, NC, USA) for fiscal Q2/2001 (to end-December) were a record US$41.494m (up 10% on Q1/2001 and 67% on Q2/2000).

Through to January 2002, Cree is investing some of the available cash in repurchasing up to 4m shares (about 5% of its outstanding common stock), partly off-setting issueance of shares for employee stock options.

* Recent Cree management appointments:
• M Todd Tucker, to Executive vp for Operations (from Senior vp at JDS Uniphase's Transmission Systems Business Group);
• Norbert Hiller, to vp and General Manager for Optoelectronics (after working with Cree over several years while at OSRAM Opto Semiconductors GmbH & Co, Regensburg, Germany).
• Mike Dunn, to vp of Cree Lighting Company (from Cree's General Manager for Optoelectronics, and previously in strategic marketing and product management roles at Hewlett Packard's Optoelectronics Division).

AXT doubles brightness of green LED

AXT Inc (Fremont, CA, USA) has doubled the output power of its high-brightness green (525 nm) AlInGaN LED to typically 1.5 mW at 20 mA (D-grade brightness), quadrupling brightness in only six months.

AXT expects a packaged lamp power output of 3 mW for outdoor and indoor display markets (e.g. video displays, traffic signals and commercial signs).

* Excluding revenues from the discontinued consumer products division (which were US$849,000 for Q4/2000; US$4.8m for 2000 - down from US$6.1m in '99), AXT's revenues were a record US$38.2m for Q4/2000 (up 82% on Q4/99 and 15% on Q3/2000) and US$121.5m for full-year 2000 (up 61% on '99).

Of Q4 sales, 95% came from the substrate division (US$36.3m, up 133% on Q3/99, 15% on Q3/2000) and 5% from the visible emitter division (US$1.8m, up from US$1.4m in Q3/2000 but down from Q4/99's US$5.4m due to discontinuation of the 650 nm laser).

The positive results are due to "early investment in 5" and 6" GaAs and 3" and 4" InP substrates" and a "large and diversified customer base", says president and CEO Morris Young.

AXT expects Q1/2001 revenues to be 7-9% up on Q4/2000 (for comparable continuing operations) and full-year 2001 55-60% up on 2000.

* To ensure it can fulfil its Supply Guarantee program (which was initiated in Q3/2000 and now covers US$91m in substrate contracts with nine customers over 2001), AXT will not accept new customers into the program during 2001. Instead, it will sell substrates under short-term purchase contracts, or agreements with no pre-payment.